THE SCIENCE OF SURVIVAL

ACR ELECTRONICS

COBHAM

PRODUCT SUPPORT MANUAL

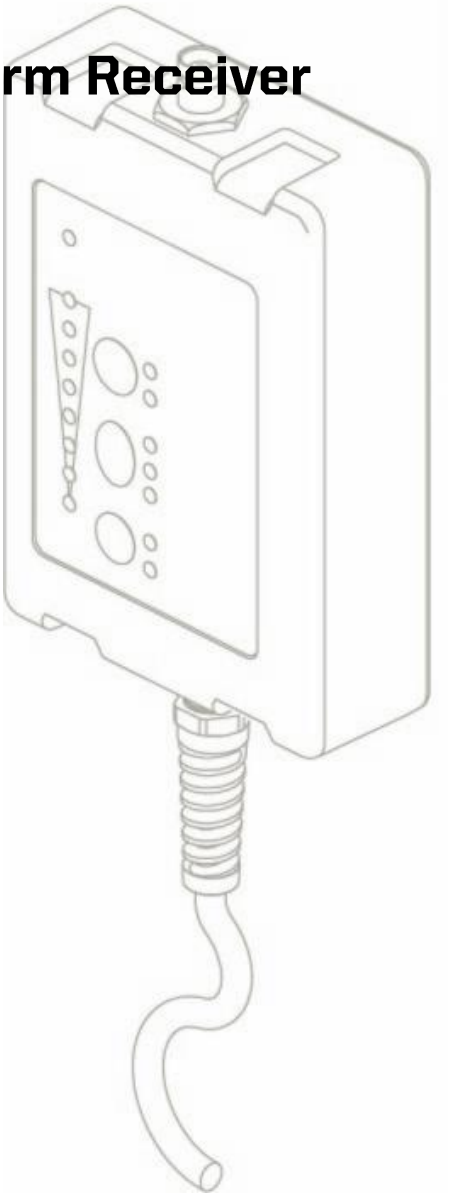
ARX-50 //

121.5 MHz Alarm Receiver

Model No.: ARX-50

Product No.: 2850

Y1-03-0229 Rev. C



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CAUTION: Before proceeding to install, test or use your new ACR Electronics' product, please read this Product Support Manual in its entirety.

If you have questions regarding the contents of the manual, please contact our Technical Service Department at ACR Electronics, Inc., Telephone +1 (954) 981-3333. Please be ready to provide the technician with the page number you wish to discuss. If you have a question that is not covered in the manual, please visit our website and access the Frequently Asked Questions (FAQs) section for further information or call our Technical Service Department. The website address is www.acrelectronics.com. If in the future you lose this manual, you may access and print a replacement on the ACR website.

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PLEASE READ ALL WARNINGS, CAUTIONS AND NOTES CAREFULLY

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SECTION 1 - HOW THE ARX-50 WORKS

The ARX-50 alarm receiver is designed as a companion to the ACR radio beacon transmitter model number RBL-30 (Mini B™$_{300}$). It is intended to be used in a crew overboard (COB) alerting application.

When properly powered and fitted with an external antenna, the signals from the Mini B™$_{300}$ transmitter can be received by the ARX-50 up to several miles. While the ARX-50 may receive signals from other radio beacons, it is optimized for service with the ACR Mini B™$_{300}$ personal beacon. The ARX-50 is designed to accept ship's power supply in the range of +10.5 to +28 V DC.

SECTION 2 - PREPARING TO INSTALL

Unpacking the ARX-50

Before proceeding with the installation of the ARX-50, please verify that the content of the box includes the following:

Quantity	Item
1	ARX-50 Alarm Receiver with attached I/O cable (1m)
1	ARX-50 mounting bracket
1	Monopole antenna
4	Stainless steel #8 X 1" Phillips screws
1	Warranty card
1	Registration card
1	ARX-50 Product Support Manual

If you do not have all of the items, please call ACR Technical Support at +1(954) 981-3333.

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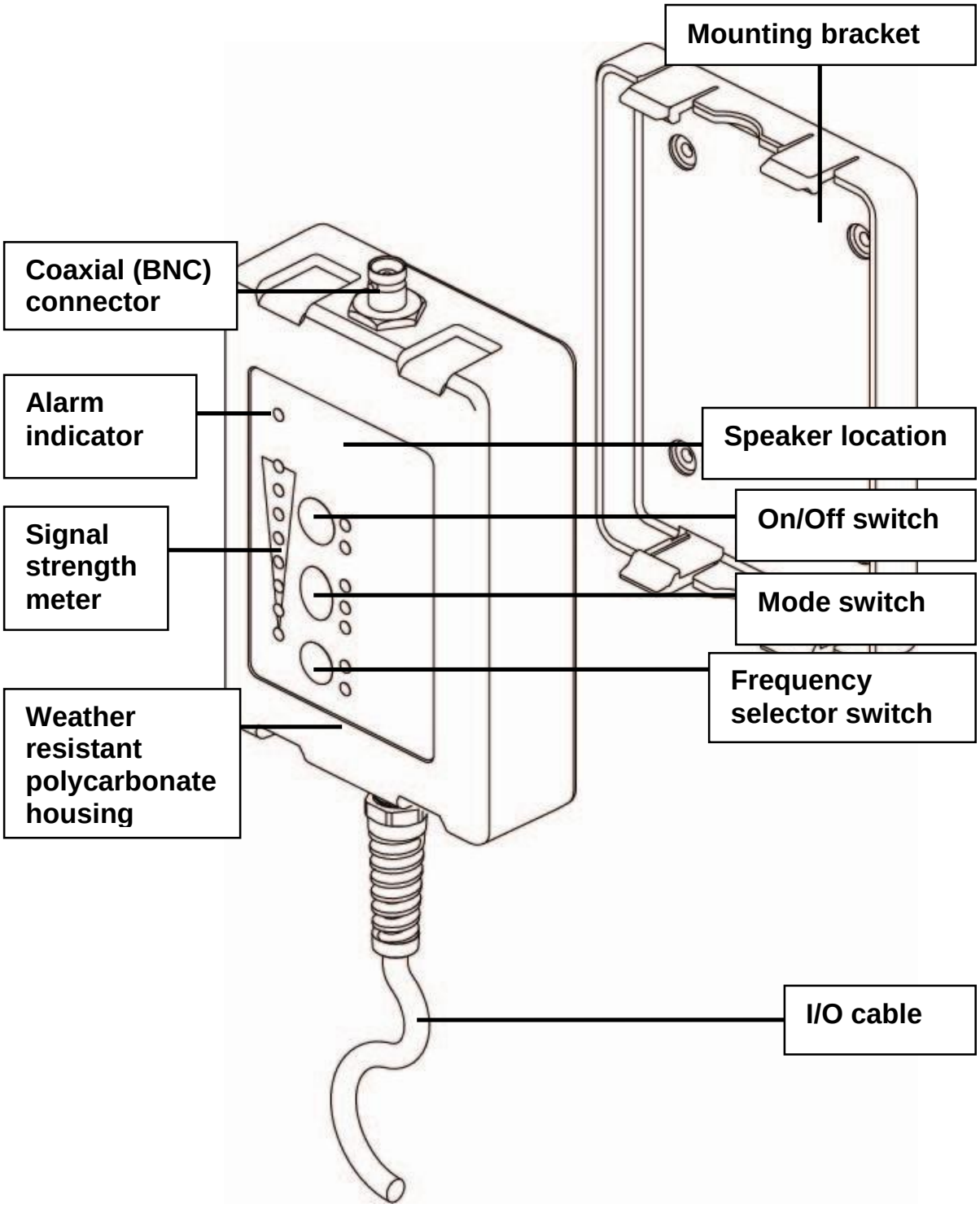
Controls and indicators



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Location selection

Choose a dry, clean surface to install the ARX-50, giving consideration to the importance of the location. The user must be able to see the visual alarm and hear the audible alarm.

CAUTION: When using the included antenna, the ARX-50 must be mounted vertically and the antenna must not be within 0.5 m of a metal panel or other metal objects.

Ship's power requirements

The ARX-50 accepts ship's power supply in the range of +10.5 to +28 V DC. A two-wire connection (ground negative) is required that is capable of supplying 120 mA average and up to 400 mA under an alarm condition at +10.5 to +28 V DC.

SECTION 3 - INSTALLATION

Mount the bracket

After selecting the location, hold the ARX-50 bracket in position and use as a template to mark where the screws will be located.

CAUTION: When mounting to a wall, avoid mounting to metal.

Pre-drill holes of a smaller diameter than the screws, if appropriate for the material that the bracket will be attached to.

Holding the bracket in place, screw the four supplied screws through the openings in the bracket to the mounting material, securing the screws tightly enough to allow for vibration, yet loose enough to avoid cracking the case.

Snap the ARX-50 into its bracket vertically, antenna skyward. Double-check that the ARX-50 is seated and secure by manually testing it for stability.

Install the monopole antenna

Install the monopole antenna on the ARX-50 via the BNC connector. The open end of the antenna is attached to the connector by a clockwise motion. The antenna snaps into place, locking it.

CAUTION: Proper installation of the monopole antenna is required to seal the ARX-50. If any antenna other than the included monopole antenna is used, the unit may not seal properly.

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Connect the power supply

The ship's power supply is the source of power for the ARX-50. A one-meter I/O cable is supplied with the product.

It is recommended that a qualified marine electronics professional or qualified electrician connect the power.

Wiring

The 1m I/O cable wiring chart is as follows:

Signal	Wire Color
Positive power (12 to 24V nominal)	Red
Ground	Black
Speaker-	Brown
Speaker+	Orange
Relay- common	Yellow
Relay- normally open	Green

Installation options

The ARX-50 is designed to be flexible, allowing for user preferences. For this reason, the system provides relay contacts for a variety of connections.

The relay contacts output in the ARX-50 is a floating metallic switch that closes upon alarm receipt. It is capable of switching a circuit carrying up to two amps, at up to 30 volts. The contacts, which are normally open, can be used for a variety of purposes, including:

- Sending input to an external GPS to save position
- Switching to an external siren or bell for an alarm

An external speaker may also be connected using the speaker wires on the I/O cable.

NOTE: It is recommended that a qualified marine electronics professional or qualified electrician connect such optional devices. While ACR allows customized connections to the ARX-50, non-standard configurations are not supported by ACR due to the number of unknowns and variables involved.

SECTION 4 - OPERATION

Operation overview

The ARX-50 is a 121.5 MHz radio beacon receiver that is part of a ship's crew overboard (COB) system. To properly protect officers, crew and passengers from COB, each individual will need to wear or carry on their person a locator beacon such as an ACR Mini B™$_{300}$ series beacon. If the beacon is activated in a COB situation, the ARX-50 receiver will detect the 121.5 MHz signal. Audible and visual alarms will be triggered.

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The ARX-50 has three large, circular push buttons and seven LEDs that indicate settings. The push buttons switch between alternate modes. Each button is assigned a set of functions. See Figure 1. Each button “beeps” when depressed. The LED indicators are either red or green to signify the system mode. Green LEDs signify that the system is in a normal state and red LEDs signify that the system is in an atypical state.

Turn on the ARX-50

The red OFF LED will be illuminated while the system is turned off, yet is still connected to a power supply. To turn on the ARX-50, depress the On/Off button. The LEDs will blink on and off, and the green On LED will illuminate. Set to default at the factory, the alarm mode is active on channel 121.5 MHz. Some signal level indicators may flicker while the unit searches for a signal.

Choose Alarm mode or Monitor mode

Alarm mode

The Alarm mode for the ARX-50 is the system’s default mode. In this mode, the radio beacon signal detector circuitry is activated, i.e., The system is ready to detect 121.5 MHz signals.

In Alarm mode, the speaker is silenced until a 121.5 MHz beacon signal is detected, at which time a loud audible siren and a flashing bright red LED are activated.

The ARX-50 detects an activated Mini B™$_{300}$ beacon, and other activated beacons that transmit 121.5 MHz signals.

The ARX-50 is designed to only detect an alarm on 121.5 MHz signals that originate from an activated beacon.

The signal strength meter is always active in this mode. If there is a strong signal that is not from a beacon, the signal strength will still be displayed on the signal strength meter, but the ARX-50 will not alarm.

Monitor High mode

This mode is intended for advanced users to obtain more information about a received signal.

NOTE: The ARX-50 reverts back to Alarm mode after 15 minutes in Monitor High mode.

In the monitor modes, the ARX-50 detector circuitry is deactivated. The demodulated 121.5 MHz audio signal is annunciated at all times. If there is not any signal on the 121.5 MHz carrier, whether activated beacon or other source, static will be audible. The speaker volume is high, and the signal strength meter is active.

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Monitor Low mode

This mode is identical to the Monitor High mode except that the speaker volume is lower.

NOTE: The ARX-50 reverts back to Alarm mode after 15 minutes in Monitor High mode.

Training mode

Operation in Training mode is identical to the live radio beacon detection mode.

In Training mode, the ARX-50 receives a special training frequency (typically 121.65 MHz or 121.775 MHz). This allows users to become familiar with the operation of the ARX-50 by using a special training beacon operating on the same frequency. This way, local Search and Rescue authorities are not notified.

NOTE: The ARX-50 reverts back to 121.5 MHz after 1 hour in Training mode.

Activation and alarm indicators

The ARX-50 is a fully automatic monitor/receiver. In Alarm mode, once the ARX-50 detects a signal, a loud audible alarm will sound and a bright red LED will flash.

Signal strength meter

The eight LEDs on the signal strength meter are capable of indicating sixteen levels of received signal strength.

The signal strength meter provides the user with an indication of how far away the 121.5 MHz signal might be. The higher the LEDs are illuminated, the stronger the 121.5 MHz transmitted signal is, and the closer the signal is relative to the ARX-50.

The reverse is also true: The lower the lit LEDs are, the less signal strength, and the further away the beacon is relative to the ARX-50.

NOTE: The signal strength meter may display a low level of activity any time that the ARX-50 is on. This is not to be mistaken for detection of a 121.5 MHz beacon transmission.

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SECTION 5 - MAINTENANCE

The following maintenance schedule is recommended:

Action	Description	Frequency
Visual inspection	Inspect the antenna, cables and connections. Ensure that the cable is attached properly and the unit has not been damaged.	Every 6 months
Performance test	Verify that the system is operating by using the training mode with a training beacon	Every year
Clean exterior	Using a mild, sudsy solution such as dishwashing liquid, wipe the surface of the ARX-50 with a damp cloth to remove film, salt and sand	As needed

APPENDIX A - SPECIFICATIONS

General	
Carrier frequency	121.5 MHz or 121.65 MHz, user selectable
Sensitivity	<0.2 µV (at antenna output)
VHF antenna	Flexible monopole
Modulation	Swept tone
Electrical input power	+10.5 V to +28 V DC, 120 mA average, 400 mA maximum
Alert methods	
	Bright red flashing led
	Loud audible alarm (≈70dBA @ 1m)
	External speaker connection (8v maximum)
	Relay contacts: normally open (2 A/30 V maximum)
Regulation conformity	
Safety	IEC 60945, EN50371
EMI/EMC	IEC 60945
RoHS/WEEE	European Directive 2002/95/EC
Physical	
Dimensions	5.3” X 3.7” X 1.5” (13.46 X 9.40 X 3.81cm)
Weather resistance	IP65 (when included monopole antenna is correctly installed)
Operating temperature	-4°F to +131°F(-20°C to +55°C)
Storage temperature	-40°F to +158°F (-40°C TO +70°C)
Weight	0.8 lbs (362.87 g)

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APPENDIX B - ACCESSORIES

The following are items that can be ordered for your alarm receiver:

Description	ACR Part Number
Mini B™$_{300}$ ILS H_2ON (water activated)	2767
Mini B™$_{300}$ ILS (manually activated)	2766.6

APPENDIX C - WARRANTY, USEFUL LIFE POLICY, NOTICES

Limited Warranty
This product is warranted against factory defects in material and workmanship for a period of 1 (one) year* from date of purchase or receipt as a gift. During the warranty period ACR Electronics, Inc. will repair or, at its option, replace the unit at no cost to you for labor, materials and return transportation from ACR. For further assistance, please contact our Technical Service Department at ACR Electronics, Inc., 5757 Ravenswood Road, Fort Lauderdale, FL 33312-6645. Telephone: +1 (954) 981-3333, Fax: +1 (954) 983-5087, Email: service@acrelectronics.com.

This warranty does not apply if the product has been damaged by accident or misuse, or as a result of service or modification performed by an unauthorized factory. Except as otherwise expressly stated in the previous paragraph, THE COMPANY MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ANY OTHER MATTER WITH RESPECT TO THIS PRODUCT. The Company shall not be liable for consequential or special damages.

To place the warranty in effect, register online at www.acrelectronics.com or return the attached card within 10 days.

*Five years for the following products: EPIRB, PLB, S-VDR, SSAS.

Useful Life Policy
The typical service life of a properly maintained Product is limited to 12 years from date of manufacture. Products that are 12 years and 1 month or older from date of manufacture will not be serviced by ACR or our Battery Replacement Centers. A Product that is 12 or less years old from date of manufacture will be serviced as long as the unit appears fit to be placed back into its final operational cycle. Service includes the replacement of those items that must be replaced at service intervals and the verification that the device appears to be in good mechanical and electrical working condition by an ACR authorized service technician.

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FCC Compliance Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses nd can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Notices

ACR Electronics diligently works to provide a high quality Product Support Manual, however, despite best efforts, information is subject to change without notice, and omissions and inaccuracies are possible. ACR cannot accept liability for manual contents. To ensure that you have the most recent version of the Product Support Manual, please visit the ACR website at www.acrelectronics.com.

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EC DECLARATION OF CONFORMITY

ACR Electronics, Inc. hereby declares that the following product is in conformity with Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on Radio Equipment and Telecommunications Terminal Equipment (R&TTE). In accordance with the Directive, the product will be marked with the CE conformity marking as follows:

CE

Product:	Man Overboard Alarm Receiver Model: ARX-50
Regulations and Standards:	IEC 60945: 2002 BS EN 50371: 2002
Manufacturer:	ACR Electronics, Inc. 5757 Ravenswood Road Fort Lauderdale, FL 33312 USA
European Representative:	ACR Electronics, Inc. (European Office) 1 Rose Cottages, Pitmore Lane, Sway, Lymington, Hampshire SO41 6BX, United Kingdom

Signed on behalf of ACR Electronics Inc.

Signed:

Name: Kerry Greer **Date: January 9, 2009**

Title: VP Engineering

Document ARX-50-001
This Declaration complies with ISO/IEC 17050-1:2004

ACR Electronics, Inc. is registered by UL to ISO 9001:2000

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